

# GRAPHIC ILLUSTRATIONS ON INDUSTRIAL SAFETY DEVICES: A CASE STUDY OF SUPERCO INDUSTRY IN BAUCHI, BAUCHI STATE.

*Ahmed Suraj Ibrahim*

## **Abstract**

The study graphic illustrations on Industrial safety devices carried out at Superco Industry was conducted to determine the problems, prospects and role of graphic illustrations in enhancing industrial safety in Bauchi state, Nigeria. Data was collected using structured questionnaire administered on 86 respondents from the production unit. Simple descriptive analysis was used in analyzing the data. The study revealed that 63.95% of the respondents agree with the prevention of industrial accident through the use of graphic illustration, 93.02% have no common understanding of the posters due to language barrier, while 68.6% attributed the lack of understanding of the existing posters to poor concept. All the respondents (86) agree that graphic illustration can be used in promoting industrial safety. The study concludes that graphical illustration is a vital tool for enhancing industrial safety in Bauchi State. It is recommended that such graphical illustration should be displayed in conspicuous areas and in the local language

## **Introduction**

The protection of the health and safety of people who work in industries should be the priority of the modern industry. In the century the safety of an employee was generally considered to be his own responsibility. An important segment of progressive industrial management saw the fallacies in these concepts and felt the management should do more for the safety of the worker. A new concept was inherent in these laws, namely that the employer should accept primary responsibility for injuries incurred at work place, even though they could not be attributed to any one person or cause. Industry became legally liable for injuries to its workers and became obligated to provide benefit during time lost from work, medical and surgical care and death benefits to dependant. In order to reduce injuries if not totally eradicate them, graphic illustrations on safety devices has to be employed into the industry. In the light of the above exposition it is therefore necessary to conduct the study on industrial safety devices.

## **Literature Review**

**Graphic Art:** The word graphic is derived from Greek word GRAPICOS; meaning “suited for writing”. In the earlier century of printing, the manually performed art were the source of illustration and decoration of books and other printed matter. Beginning about the middle of the 19<sup>th</sup> century came the revolutionary application of photography to the making of printing surface. In 20<sup>th</sup> century, printing as a base procedure has been modified by photomechanical and related inventions into several distinct processes with application to many materials other than paper. Encyclopedia Americana, 1987, Vol.13.

**Graphic Designer:** - Responsible for the shape, dimension and placement of the element in advertisement. The initial design of an advertisement will dictate its artistic dimension and eventually determine whether that advertisement is to be stunning, beautiful, a work of art or just another. The effort of the designer is to arrange the various elements of design and the principle of design for any type of design the most attractive and effective way possible. Designer gives a unique touch to any work or advertisement, Encyclopedia Americana 1987 Vol.13.

**Illustration:** - Is the picture diagram other types of visual aid that is used to clarify or decorate a story articles, advertisement or other text. An illustration may be the writing or drawing in black and white or colour. Designer make a painting or drawing for an illustration, he may work in water colour, aid,

charcoal, pen and ink or in one of the graphic medium such as engraving and lithography. Probably the first printed illustrated broke paper came the press of ALBRECHT PRINTER of Banberg between 1440 and 1465 and the number were produced in Germany, Italy. In the 18<sup>th</sup> century Europe and France led in book illustration by including word cut decorated in the same book, illustrated in full page engraved plate with flower, Encyclopaedia Vol. 14 1989.

**Colour**

Is defined in one of two ways either subjective as an aspect of visual appearances; or objective as the property of light by which we were made aware of objects or light sources (Encyclopedia Americana Vol. 7 1989). Colour class of sensations made by light on the optic nerve. (New Standard Encyclopedia 1986 Vol. 4). Colour serves to describe things or natural phenomena. Colours have in themselves that independent characteristics from the object they set out to express. This means that colour in itself have independent capability of arousing viewer’s interest knowing the much role colour plays, excitement or deep anxiety (Roy, 1980).

**Psychological Impact of Colour**

COLOUR	MEANING	APPLICATION
Red	Symbol of blood and fire. It is the most versatile colour the hottest colour with higher action quotient.	Appropriate for soup, fire and danger e.t.c.
Brown	Masculine colour associated with earth, woods mellowness, age and warmth comfort.	Depict male character use to sell anything or make emphasis
Yellow	High impact to catch customers eyes, particularly when used with black	Eight for corn lemon or sun tan product.
Green	Symbol for health, freshness popular for tobacco products, especially mentholated.	For fruits and farm product, and tobacco production.
Black	Conveys sophistication, heightened merchandise used to stimulate expensive products	Depicts evil bad mood
Orange	Most edible colour especially in brown tinged shades	Cokes autumn and good thing to real.

The use of colour in a design communicate both verbally and non-verbally for example green illustration can note freshness. The characteristics of any design constitute the colour, shape, design layout and labeling which serves as the main features that communicate in any design illustration. (Encyclopedia Americana 1987. Vol.7).

The graphic nature of the: -

- (1) Colour illustration
- (2) Placement and maintenance

The graphic nature of colour illustration will involve making safety sign and symbol (or giving information and direction). They are as follows:

- 1. Why goggles should be worn while welding is taking place.
- 2. Smoking is not allowed in any operation machinery unit to avoid fire outbreak.
- 3. Wearing protective coverings while exposed to chemicals and solutions.
- 4. Wearing of helmet and rain boot to avoid easy slippery of chemical substances on the ground.

**Importance of Graphic Illustrations on Safety Devices**

Graphic illustration carries a great deal of responsibility for the success of safety with device. However, if graphic illustrations were used, it must do one or more of the following: -

- 1. Capture the attention of workers and help convenience the worker of the dangers of involved following the safety rules.
- 2. Clarity claim made by safety sign

3. Emphasize unique advantage of putting safety sign on machines
4. The designer will effectively communicate a message.
5. Arouse interest in following safety measures while working
6. Adhering to safety measure will guarantee their safety.

### **Dangers of Graphic Illustrations on Safety Devices**

The dangers associated with workers without the use of safety measures are as follows:

1. Axe, saw wound and eye injuries
2. Crushed limbs, due to working under logs
3. Expose to chemicals, which leads to severe cough, breathing difficulties, exposure to heat, burning of melting of metals and gasses.
4. Subjection to deadly gases, dust and lungs infection due to exposure to radioactive substance.
5. Lack of goggles when welding sparking light destroys the eyes gradually.
6. Touching electrical fittings without hand glove and wire when the hands or feet are wet.
7. Poor ventilation when machines are on operation and exposure of funaes and slippery object on the floor.

### **Placement and Maintenance**

The graphic illustration will be placed at a strategic position within the industry on the wall, on chemical tables and on machines where the industrial workers will constantly see it. The sectional head takes care of the maintenance.

### **Existing Poster on Safety Device in Superco Industry**

The existing poster on safety devices found in SUPERCO industry can be summarized into the following:-

1. The safety devices are all contained in one poster.
2. The poster design or art work are made off outline only.
3. Lettering are in black and white colour only.
4. The language of communication is English only
5. The poster does not carry full design and is only white and black colour.
6. The existing poster is dirty, and torn due to exposure to chemicals and many years.

### **Improved Graphic Illustration on Safety Device in Superco Industry**

The improved graphic illustration on industrial safety devices at Superco industry in Bauchi deals with the following: -

- ❖ The use of colours Black, White, Blue, Red, Yellow and Green will be more effective in the new improved graphic illustrations.
- ❖ English and Hausa are the major languages of communication for easy understanding of the graphic illustrations.
- ❖ Sign and symbol will be on A4 size, laminated for legibility and durability
- ❖ Lettering and typography must be clear and simple for the worker at first sight.
- ❖ Graphic illustrations will stand out on A4 size to be places when expected.
- ❖ The improved graphic illustrations carries a full art work or design with full colours based on the sign or symbol.
- ❖ Sectional head takes care of the maintenance.

The use of recommended colours for certain safety devices are required by the international standards in the book information graphics (B.P. 1987).

### **Statement of the Problem**

In our industries, the health of workers received little or no attention due to lack of awareness, education, ignorance and training. Many industrial workers were subjected to life injury, dangers and unfavourable condition. Today graphic illustration is one of effective ways of communication or enlighten the industrial workers on industrial safety devices. Since work related death, injuries and

stress other in work place. It is necessary to explore way of dramatically reducing them, if it is not possible to totally eradicate them.

### Objectives of the Study

The broad objective of the study is to determined the effect of graphic illustration in industrial safety devices in SUPERCO industry located in Bauchi State of Nigeria. The specific objectives are to: -

- (1) determine the extent to which the industrial worker uses the graphic illustration at work place;
- (2) note the attitude of workers in respect of the industrial safety devices;
- (3) identify and document the use of graphic illustration in the industry; and
- (4) to make recommendation based on the findings of the study.

### Method

A sample size of 86 workers were drawn from population of all the workers in SUPERCO industry, Bauchi using simple random sampling method. Descriptive data was collected using structured questionnaires administered to the respondents, while secondary data was obtained from existing related literature.

### Method of Data Analysis

The data collected for the study was analyzed using simple descriptive statistic. This is to improve on the existing graphic illustration of safety devices in SUPERCO industry in Bauchi and to reduce the life threat and communication message.

### Results

**Table 1**

**The prevention of accident through the use of graphic illustrations.**

RESPONSE	FREQUENCY	PERCENTAGE
Yes	55	63.95%
No	31	36.05%
Total	86	100%

Source: Field Survey, 2008

The table 1 shows that 63.95% of the population sample respondent feel that accident can be prevented through the use of graphic illustrations.

**Table 2.**

**Common understanding of the Poster**

RESPONSE	FREQUENCY	PERCENTAGE
Yes	6	6.98%
No	80	93.02%
Total	86	100%

Source: Field Survey, 2008

From the table 2 93.02% of the respondents feel that the existing poster, will not give a common understanding to the workers, they feel the poster do not break all language barrier to give easy understanding and communication to the workers.

**Table 3**  
**Accessibility of the Poster.**

RESPONSE	FREQUENCY	PERCENTAGE
Yes	26	30.23%
No	60	69.77%
Total	86	100%

Source: Field Survey, 2008

The table 3 indicates that the existing poster is not placed in easily accessible area with 69.77% respondents.

**Table 4**  
**Understanding of the existing poster by the worker**

RESPONSE	FREQUENCY	PERCENTAGE
Yes	27	31.40%
No	59	68.60%
Total	86	100%

Source: Field Survey, 2008

Table 4 shows that 68.60% of the respondents feel that the existing poster is not easily understood. This may be due to the poor concept.

**Table 5**  
**Support for the use of graphic illustrations in promoting industrial safety project.**

Response	Frequency	Percentage
Yes	86	100%
No	-	-
Total	86	100%

Source: Field Survey, 2008

The entire respondents according to the table 5 supports the idea of using graphic illustration to improve safety in the industries.

### **Conclusion**

In an industry, industrial safety is one of the most important aspects. In order to protect the life of the worker, and the life of the industry itself in order not to collapse. The graphic illustrations on industrial safety devices in industries carries a great deal of responsibility for the purpose of the awareness of safety with devices. It is important that all the industry should have graphic illustration on safety devices. This study has shown the importance of graphic illustrations in industrial setting. The industries have come a long way from a small scale industry to the large scale industry. As we all know, there is improvement in technology, therefore, we should also move towards technological advancement. The message will help workers or employees in SUPERCO industry in Bauchi, Bauchi State as to how they protect their physical body as well as their health and internal body system. However, in some of the industrial safety awareness remains unchanged. The essence of life, health and safety of the industrial worker and the industry should be protected by the management.

### **Recommendations**

Based on the findings of the study and its conclusion, it is recommended that the following points should be put in place to enhance industrial safety in Bauchi State.

1. Graphical illustrations should be conspicuously displayed for workers
2. Graphical illustrations should be written in local languages for easy understanding.
3. The concept of graphical illustration should be attractive, brief and relevant to the issue.

**References**

- Bauchi State Environmental Protection Agency Report (2002)
- Brian, P. BE.D (1987). *Information Graphics* Kennington Kent Publisher Limited, New York City
- Encyclopedia Americana (1989) Vol. 14 New York City
- Encyclopedia Americana (1987) Vol. 7 New York City
- Encyclopedia Americana (1987) Vol. 13 New York City
- Federal Ministry of Commerce and Industry (2000) Handbook, Bauchi State,
- Gwani, C. (1998) Packaging as a medium of advertisement. A case study of NASCO train care product package design, unpublished B. Tech (Industrial design) project Department of industrial design. Abubakar Tafawa Balewa University Bauchi.
- Henry, A. B. (1980) *The book of knowledge*, New York City.
- Isaac, K. A. (1999) Use of colour poster in Agricultural Extension Servicing Unpublished B. A. (fine art) project. Department of Fine & Applied Art Ahmadu Bello University Zaria.
- John, R. R. (1983), *Safety at work* American Publisher Limited. New York
- Lenel, M. D. (1980) *A Heading Chief* Department of Median, New York City
- Marynard H. B. (1991) *Industrial Engineering*, John Wildey Publisher, New York City
- New Standard Encyclopedia (1986) Vol. 4 America.